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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,953	12/22/2003	Judson Ames Cornish	JAC-20031221	9868

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EXAMINER	
DAO, THUY CHAN	
ART UNIT	PAPER NUMBER
2192	

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12/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/743,953	CORNISH, JUDSON AMES	
	Examiner	Art Unit	
	Thuy Dao	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-6,8,15,16,19 and 20* is/are pending in the application.

4a) Of the above claim(s) *1,7,9-14,17 and 18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6,15,16 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) *2,8 and 20* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *n/a* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the amendment filed on October 2, 2007.

2. Claims 2-6, 8, 15-16, and 19-20 are pending. Claims 2, 8, and 20 have been restricted and withdrawn as non-elected inventions. Claims 3-6, 15-16, and 19 are currently present for prosecution.

Response to Amendments

3. Per Applicant's request, claims 2-6, 8, 15-16, and 19 have been amended; claims 1, 7, 9-14, and 17-18 have been canceled; and claim 20 has been added.

4. The objection to the specification is withdrawn in view of Applicant's amendments.

Restrictions/Election

5. Independent claim 1 has been canceled and new independent claims 2, 3, and 8 have been formed and significantly amended, which now explicitly direct to distinct inventions, thus prompt this Restriction requirement. Restriction to one of the following inventions is required under 35 U.S.C. 121:

(I). Claim 2, classified in class 717, subclass 106.

(II). Claims 3-6, 15-16, and 19, classified in class 717, subclass 114.

(III). Claim 8 and 20, classified in class 717, subclass 151.

6. Claim 2 (Group I) includes at least limitations "...a set of aggregating clauses, which specify a further set of variable values in a current iteration based on the variable values in the previous iteration, whereby users of the system can define any computable result of the iterations" recited in limitation (j)ii., which Applicant has pointed out and/or acknowledged as distinct/independent, novel, unobvious limitations (i.e., page 19 section "Specific Method of Defining Arbitrary Aggregations in Claim 2 is Novel", page 20 section "Aggregation Mechanism of Claim 2 is Unobvious", emphasis added), and not required by independent claim 3 (Group II) and independent claim 8 (Group III).

7. Claim 3 (Group II) now amended to include at least specific limitations:

> "i. runs said plans by evaluating each clause in the order specified, using variable values generated by earlier clauses as input to later clauses, and by recursively selecting and running plans for clauses which are specified by predicates,
>
> ii. generates valid variables by backtracking and re-evaluating an antecedent clause to generate alternate sets of variable values when a subsequent clause fails to evaluate successfully using the original set of variable values"

which Applicant has pointed out and/or acknowledged as distinct/independent, novel, unobvious limitations (i.e., page 21, section "Backtracking Distinguishes Claim 3", emphasis added), and not required by independent claim 2 (Group I) and independent claim 8 (Group III).

8. Claim 8 (Group III) now amended to include at least specific limitations: (j) ... (k) ... (l) ..., and (m) ..., and further do not require distinct and independent limitations as recited in claim 2 above (i.e., (j)ii. "Arbitrary Aggregations in Claim 2 is Novel") and claim 3 above (i.e., (i) and (ii) "Backtracking Distinguishes Claim 3"), which Applicant has also pointed out and/or acknowledged as distinct/independent, novel, unobvious limitations (i.e., pp. 25-27).

9. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification (see MPEP 808.02), restriction for examination purposes as indicated is proper.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

10. Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case (emphasis added). In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

11. Since the Applicants have received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, **claim 2 (Group I) and claims 8 and 20 (Group III)** are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

12. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action

Specification

13. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

In the instant application, the phrase in lines 1-2 is considered to read as - -[[The Invention is an]] An Extensible Markup Language (XML) Application Server for storing, processing, ...- -.

Furthermore, an abstract on a separate sheet is required by 37 CFR 1.72.

Appropriate correction is required.

Claim Rejections – 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 3-6, 15-16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable by Omoigui (art of record, US Patent Publication No. 2003/0126136 A1) in view of US Patent No. 6,567,802 to Popa et al. (art made of record, hereinafter "Popa").

Claim 3:

Omoigui discloses *a method of specifying, generating, and running a data processing system, comprising:*

(a) providing a plurality of predicates, each referring to a set of arguments ([0274], [0630]),

(b) providing a plurality of specifications, each of which defines valid argument values for said predicates, and refers to: a set of variables, and a set of clauses (e.g., predicate templates [0579], [1139]),

(c) specifying some clauses of said specifications by referring to one of said predicates, and to variables of the specification to specify values for arguments of the predicate (e.g., [0274], [0630]),

(d)providing a plurality of plans, which are able to be run to generate sets of valid argument values for said predicates (e.g., SQML queries, [0274]),

(e) providing a planning means which is able to generate said plans from said specifications (e.g., [0847]),

(f) providing an evaluation means which is able to run said plans to generate sets of valid argument values (e.g., [1144]),

(g) generating multiple sets of valid variables for some component steps of some plans, and testing said sets of valid variables for combinations which generate valid result arguments (e.g., [0643]),

(h) providing an input means which is able to provide input data values for a set of the arguments of a predicate (e.g., [0340-0341]),

(i) providing an output means which is able to output data (e.g., [0372-0374]),

(j) inputting argument values from said input means, evaluating input argument values to generate output argument values using said evaluation means, and outputting argument values using said output means (e.g., [0470], [0865], [1146])

(k) some of said plans refer to an ordering of the clauses of one of said specifications (e.g., [0072], [0322], [0341], [0971-0973], [1139]).

Omoigui does not explicitly disclose other limitations. However, in an analogous art, Popa further discloses *some of said plans refer to an ordering of the clauses of one of said specifications* (e.g., col.3: 40-57; col.28: 26-55), *said evaluation means further*

(i) runs said plans by evaluating each clause in the order specified, using variable values generated by earlier clauses as input to later clauses, and by recursively selecting and running plans for clauses which are specified by predicates (e.g., col.4: 24 - col.5; 19; FIG. 5, col.27: 32-67; col.7: 57 – col.8: 7),

(ii) generates valid variables by backtracking and re-evaluating an antecedent clause to generate alternate sets of variable values when a subsequent clause fails to evaluate successfully using the original set of variable values (e.g., col.5: 20-35; FIG. 4, col.26: 51 – col.27: 30; col.7: 57 – col.8: 7).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Popa's teaching into Omoigui's teaching. One would have been motivated to do so to use the chase/backchase technique to systematically optimize generating alternative query plans as suggested by Popa (e.g., col.3: 31 – col.4: 18).

Claim 4:

The rejection of claim 3 is incorporated. Omoigui also discloses *said planning means comprises: selecting which clauses of said specification will generate which variable values, by first selecting clauses which generate the minimum number of different values, whereby other clauses will be less frequently re-evaluated during execution* (e.g., [1117], [1125]).

Claim 5:

The rejection of claim 4 is incorporated. Omoigui also discloses *said planning means further comprises: ordering the clauses for sequential processing, by first*

scheduling clauses that combine higher processing cost and lower number of different generated values, whereby more computationally expensive clauses will be evaluated less often (e.g., [0072], [0322], [0341]).

Claim 6:

The rejection of claim 5 is incorporated. Omoigui also discloses *the data values for some of said arguments and said variables are comprised of semi-structured data, wherein said values are tagged with a label, said evaluation means further recursively selects said plans by considering the said label of some input argument values while running, and by using said label to look up said specification plans* (e.g., [0865], [0899]).

Claim 15:

The rejection of claim 5 is incorporated. Omoigui also discloses:

(a) providing a data store which is able to store and retrieve data (e.g., [0206], [0254]), *and*

(b) specifying some of said clauses by referring to locations in said data store (e.g., [0270], [0254], [0206]),

(c) further comprising specifying some of said clauses by specifying an alteration to said data store (e.g., [0287], [0526]), *and*

(d) wherein said evaluation means further comprises: altering said data store in accordance with the clauses that refer to an alteration in said data store and that are also included in a successfully evaluated plan for said input, and in accordance only with the variable values that were tested successfully (e.g., [0526], [0588]).

Claim 16:

The rejection of claim 15 is incorporated. Omoigui also discloses

(a) providing a plurality of caches which are able to store sets of variable values, (b) storing precomputed valid values of some variables of said specifications in said caches (e.g., [0277], [0302]),

(c) providing a plurality of indexes, each of which is able to accept values for a predetermined subset of the variables in one of said caches, and to return all matching sets of the remaining values (e.g., [0340-0341]),

(d)providing an indexing means which is able to create one of said indexes given one of said caches and a predetermined subset of input variables (e.g., [0372-0374]), *and*

(e) wherein said evaluation means further comprises: generating some variable values by inputting other variable values into said indexes (e.g., [0638]), *and*

(f) providing an updating means which uses data changes in said data store as input arguments to said specifications associated with said cache, and evaluates a modified version of said plans associated with said specifications, in order to determine which portions of said cache must be updated (e.g., [0277], [0302], [0526], [0588]).

Claim 19:

The rejection of claim 16 is incorporated. Omoigui also discloses:

(a) the data values for some of said arguments and said variables are comprised of semi-structured data, wherein said values are tagged with a label (e.g., [0579], [1139], [0274]),

(b) said evaluation means further recursively selects said plans by considering the said label of some input argument values while running, and by using said label to look up specification plans (e.g., [0847], [1144]),

whereby a single declarative language can be used to specify the presentation, business logic, and data layers of a multi-tier application (e.g., [0274]), *and*

whereby the same semi-structured, self-describing data model can be used throughout the presentation, business logic, and data layers, and whereby the business logic layer specification can be used to drive the automatic creation of the best set of indexes for efficient data retrieval (e.g., [0340]), *and*

whereby the business logic layer can benefit from the backtracking and search power of rule-based engines, and whereby the business logic layer can benefit from the optimization efficiency of planning engines normally used only on the data layer (e.g., [0341-0342]), *and*

whereby the business logic layer can benefit from caching and indexing performance improvements normally reserved for the data layer, and whereby data layer declarative queries can include user-defined functions, arbitrary iterative algorithms, and object-oriented dynamic-dispatch as part of their specifications (e.g., [0579], [1139]), *and*

whereby applications do not require garbage-collection or any memory management by the programmer, and whereby application source code can be specified without the run-time side-effects of function arguments passed by reference, of variable assignment and reassignment, or of long-term data store changes, and is thus amenable to automated correctness checking and automated re-writing (e.g., [0274], [0276], [0309], [0661]).

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao

TUAN DAM
SUPERVISORY PATENT EXAMINER